



Docket: 06056

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: **MAIL STOP AFTER FINAL**
VON SCHROETER et al. Art Unit: 1744
Serial No.: 10/580,854 Examiner: Amjad A. Abraham
Filed: May 26, 2006
For: METHOD FOR PRODUCING A MOLDED PIECE

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

In the Final Office action, the Examiner rejected claims 1, 6-11, 13, 17-19, and 21 as obvious over WO 2002/045614 ("Filser") in view of U.S. 6,495,073 ("Bodenmiller") in further view of WO 2003/041606 ("Suttor") in further view of DE 44 36 231 ("Hintersehr"). The Examiner also rejected claims 3-4, 12, 14-16, and 20 as obvious over Filser in view of Bodenmiller. The Examiner also rejected claim 22 as obvious over Filser in view of Bodenmiller in further view of Hintersehr.

Applicants hereby request pre-appeal brief review of the Final Office action in view of the below remarks. A Notice of Appeal is being filed herewith.

I. The Filser Reference

Filser is directed to a dental bridge manufactured from a ceramic blank using a milling instrument. The dental bridge is connected with the ceramic blank via holding webs, which are separated after the inner and outer contour of the dental bridge is worked out by milling. One disadvantage of such a method is that, after separation of the webs, the connecting points between the webs and the dental bridge must be processed. This requirement is stated clearly in Filser:

On completion of machining of the blank, the webs 20 are separated from the work piece 18 and the point of separation of the work piece is ground smooth. (col. 5, lines 45 et seq., referring to U.S. 7,077,391, the equivalent of WO 2002/045614).

Filser further describes the working of the workpiece as follows:

With respect to the method, the object is achieved according to the invention in that a preselected workpiece is continuously exposed from the ceramic blank until only holding webs which can be freely selected according to position and number are formed which end directly on the residual material of the blank in the region of the frame or on the frame. (col. 3, lines 55-61, referring to U.S. 7,077,391, the equivalent of WO 2002/045614).

These disadvantages are avoided in the present invention, because a circumferential web exists between the molded piece worked out and the blank, the circumferential web being split after the molded piece has been completely worked out of the blank, inside and outside. The circumferential web is a line-shaped connection between the molded piece and the blank, so that after splitting the circumferential web, the molded piece does not need to be reworked. Consequently, a molded piece can be produced very precisely, and with thin walls, which after being removed from the blank do not need to be reworked, thus minimizing damage to the piece.

Furthermore, Filser does not disclose that the webs, having a relatively thick cross section, run between the molded piece and the blank in the area of the largest extent of the molded piece. Filser also does not disclose that the web, in the area of the largest extent, connects the molded piece and the blank, circumferentially.

The claimed feature that the splitting of the circumferential web is effected by circular milling using a milling tool set in its depth to recover the molded piece, is also not mentioned or suggested by Filser.

II. The Filser, Bodenmiller, Suttor and Hintersehr References Cannot be Combined

The Examiner agreed that Filser does not disclose three central elements of claim 1, namely, (i) “wherein the working step works the inner and outer contour of the molded piece”, (ii) “wherein the splitting step is done by circular milling”, and (iii) “wherein the circumferential web (holding web) contacts the molded piece around the entire periphery of the molded piece.”

For element (i), the Examiner pointed to Bodenmiller. However, Bodenmiller is directed to solving a completely different problem, and discloses a completely different methodology than Filser.

Regarding the problem being solved, Bodenmiller discloses a method wherein a blank is embedded into an embedding mass 3, in order to produce a section of the molded piece from the blank. The machined part of the blank is then again embedded into a new embedding mass (see Fig. 5) to treat the remaining part of the blank. The pertinent parts of Bodenmiller read as follows:

After the machining of the underside of the workpiece 6 is completed, the embedding mass 3 is subsequently once again poured into it (FIG. 4). It would also be possible to fill up the previously milled-out inside of the crown with the milling wax 3 again already before the machining of this first area of the outside of the crown, in order to support the side walls of the crown.” (col. 8, lines 14 et seq.).

Clearly, this method has nothing to do with Filser’s method of machining a workpiece, and so a person of ordinary skill in the art would not even consider using the technique taught by Bodenmiller to further develop the method of producing a molded piece taught by Filser.

For element (ii), the Examiner pointed to Suttor as disclosing a splitting step carried out by circular milling. However, Suttor is directed to solving a completely different problem, and discloses a completely different methodology than Filser.

Suttor discloses different methods of working a blank, by a rough milling and a fine milling, to produce dentures. Suttor discloses that circular milling is one possibility to mill a work piece.

However, Suttor does not hint at how a dental piece to be produced remains connected with the blank, in order to obtain a finished dental piece upon separation of the connection between the dental piece and blank making any further treatment unnecessary. Suttor is also silent regarding the feature that a circumferential web connecting a molded piece and a mold blank is split by circular milling using a milling tool set in its depth. As such, a person of ordinary skill in the art would not even consider using the technique taught by Suttor to further develop the method of producing a molded piece taught by Filser.

For element (iii), the Examiner pointed to Hintersehr as disclosing a circumferential web contacting the molded piece around the entire periphery of the molded piece.

Hintersehr discloses a method and device for producing a dental prosthesis. For this purpose, a blank 30 is used from which a dental prosthesis is prepared. As set forth in col. 2, lines 40- 43:

A blank 30, from which a dental prosthesis, e.g. a crown is to be produced, has a slight cylindrical shape whose cross section is essentially smaller than the inner width of the ring 20. *(Ein Rohling 30, aus dem eine Dentalprothese, beispielsweise eine Krone hergestellt werden soll, besitzt schlanke zylindrische Form, deren Durchmesser wesentlich kleiner als die lichte Weite des Rings 20 ist.)*

The purpose of the ring 20 is to hold the blank. Subsequently, the ring is inserted into the chuck 1 of a treating machine. Claim 1 of Hintersehr recites:

Method for producing a dental prosthesis, especially crown, from a blank which is clamped into a chuck and treated, characterized in that the blank (30) is embedded in a ring (20) and that ring (20) with blank (30) are clamped in the chuck (1) *(Verfahren zur Herstellung einer Dentalprothese, insbesondere Krone, aus einem Rohling, der in ein Futter eingespannt und bearbeitet wird, dadurch gekennzeichnet, dass der Rohling (30) in einem Ring (20) eingebettet und Ring (20) mit Rohling (30) in das Futter (1) eingespannt wird)*

At col. 2, lines 10-12, Hintersehr states:

Chuck 1 of a treating machine not shown, e.g. a computer controlled milling machine, is made of a solid steel plate . . . *(Das Futter 1 einer nicht dargestellten Bearbeitungsmaschine, beispielsweise einer rechnergesteuerten Fräsmaschine, besteht aus einer massiven Stahlplatte . . .)*

The dental prosthesis is then prepared from the blank, for example by means of a milling cutter, requiring that any contact with the ring is avoided. As stated in Hintersehr:

It must be ensured that e.g. during machining the blank 30 with a milling cutter it is avoided reliably that the sensitive milling cutter contacts the ring 20 *(Es muss sichergestellt sein, dass beispielsweise bei der Bearbeitung des Rohlings 30 mittels eines Fräasers zuverlässig vermieden wird, dass der empfindliche Fräser den Ring 20 kontaktiert)*. (col. 3, lines 20-23).

Fixing the blank inside blank can be achieved either by shrinking on (claim 2) or by a dental adhesive (claim 3).

Hence, the ring of Hintersehr is a ring for fixing and holding the blank. The ring 20 of Hintersehr corresponds to the frame 12 of Filser (see e.g. Figs. 2, 3, 5-11). The ring 20 is an auxiliary means for fixing the blank in a working machine. Consequently, the ring is an element surrounding the blank.

In sharp contrast to this, the present invention provides that the dental prosthesis to be produced from a blank remains inside the blank, with the dental prosthesis being connected with the blank via a circumferential web (claim 1) or a circumferential membrane (claim 12).

Totally different working principles are used in Hintersehr, which requires the use of a separate element for obtaining the dental prosthesis to be produced. The present invention, on the other hand, uses an integral component of the blank to obtain a dental prosthesis.

While Hintersehr requires the use of different rings depending on the dental prosthesis to be produced, the invention offers the advantage to produce several parts of dental prosthesis, each part remaining connected with the blank.

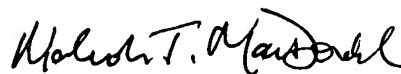
The Examiner has not made a *prima facie* case of obviousness, because there is no motivation to combine the Filser, Bodenmiller, Suttor, and Hintersehr references. The Examiner's purported motivation to combine Filser and Bodenmiller was that it would have been obvious to incorporate Filser into Bodenmiller "because the use of computer technology (CAD/Cam unit) is well known to be used in conjunction with milling operations and would be designed to work the entire molded piece in one operation." (Final Office action, p. 5). How can this be regarded as motivation to combine two references which are of totally unrelated technology, and wherein the problems to be solved by each of the references is different?

Clearly, none of the Bodenmiller, Suttor and Hintersehr references relates to Filser's disclosure, and none of the cited references teach or suggest (1) a circumferential web formed in the outer boundary range and in the area of the largest extent of the molded piece, and (2) a circumferential web that contacts the molded piece around the entire periphery of the molded piece, as required by the claims.

In view of all of the above, it is submitted that the Examiner's rejections and reasoning for combining the references is improper, and claims 1 and 12, and claims dependent thereon, are novel and unobvious in view of the cited art.

Respectfully submitted,

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